

EXPERIMENTATION AND VARIABLES

(1) Observation has _____, but cannot _____.

(2) In experimental research, the factor that the experimenter manipulates is the _____ variable, while the response of the subject is the _____ variable.

(3) An interaction occurs when:

(4) Lisa wants to know whether words will be easier to remember if they can easily be visualized (pictured). She creates two lists of words: List A consists of easily visualized words like "cat" and List B consists of words that are difficult to visualize like "justice." Each list contains 15 words, with an average word length of 5 letters for list A and 10 letters for list B. She presents the two lists to two different groups of subjects and records how many words they recall correctly from each list and how rapidly they recall them.

The independent variable(s) in this study are:

The dependent variable(s) are:

Lisa finds that people recall more words from List A than from List B. Because of this, she wants to argue that her hypothesis is right -- that is, that words that can be visualized are remembered more easily. However, her experiment seems to have a confound (a factor that could provide an alternative explanation for the pattern of results). That confound is:

(5) Suppose I wanted to look at the effect of memory instructions on people's memory for words of different types. I decide to present 20 concrete (e.g., boat) and 20 abstract (e.g., honesty) words to everyone. For half of the participants, I'll have them form a visual image of the word, and for the other half, I'll have them repeat the word over and over to themselves.

How many independent variables are in the design?

How many main effects would be assessed using this design?

Suppose these are my findings (level of recall for each group):

Imagery/concrete: 90%; Imagery/abstract: 65%; Repeat/concrete: 70%; Repeat/abstract: 20%. Is an interaction apparent in the data?

(6) Dr. Diaz believes that the pitch and tempo of sounds are recognized by different processes in the brain. She is able to find patients with a certain kind of brain damage who can identify tempo but not pitch. Why is it important for her to also find patients who can identify pitch but not tempo?

(7) Dr. Lucas' lab has run many experiments in which people read a list of words and are later asked how many words they can remember. Upon hearing that Dr. Lucas' lab has consistently found that older adults remember fewer words than

college students, Donald (one of the older participants) becomes angry and insists that even though he can't remember a list of unimportant words too well, he never forgets his grandchildren's birthdays, can remember the names of everyone he meets, and can readily recite autobiographical stories with impressive detail. In saying that Dr. Lucas' methods fail to capture normal memory abilities, Donald has criticized the _____ of Dr. Lucas' research.

TECHNIQUES

- (1) In an experiment, if the researcher is paying particular attention to eye movements, pupil size, heart rate, sweat, etc, then he/she is using:
- (2) Functional magnetic resonance imaging (fMRI) uses _____ to determine blood flow in the brain.
- (3) Event-related potentials are used to:
- (4) The ERP technique uses _____ to obtain good _____ information, whereas fMRI uses _____ to obtain good _____ information.
- (5) Techniques that are commonly used to determine if two processes use similar or different brain areas, include:

APPROACHES/THEORIES

- (1) The IP model is inspired by an analogy between the brain and computers. What assumptions does the IP model make from this analogy?
- (2) In explaining cognition, the connectionist (PDP) approach emphasizes:
- (3) Information Processing (IP) and Parallel Distributed Processing (PDP) are two of the main approaches to cognitive psychology. What are key differences between them?
- (4) Imagine a visual word recognition model in which all of the letters in a word must first be identified before the word can be recognized. This would be an example of a/an _____ model.
- (5) Which type of model (IP and/or PDP) allows both bottom-up and top-down influences on cognition?
- (6) How would a PDP model function if a few units were removed?